Claims:

1. An OLED structure, comprising:
a substantially flexible substrate; and
at least one barrier layer, each of which includes a glass layer that has certain components added or removed, wherein the barrier layer substantially prevents contaminants from permeating a layer of organic material or the OLED structure.

2. An OLED structure as recited in claim 1, wherein the contaminants are water vapor and oxygen.

3. An OLED structure as recited in claim 1, wherein a plurality of the barrier layers is disposed beneath the OLED structure.

4. An OLED structure as recited in claim 1, wherein the at least one barrier layer is disposed beneath the OLED structure and at least one other barrier layer is disposed over the OLED structure.

5. An OLED structure as recited in claim 1, wherein the barrier layer is a glass material.

6. An OLED structure as recited in claim 5, wherein the glass material is $Mg_xAl_ySi_zO$ or Aluminoborosilicate glass.

7. An OLED structure as recited in claim 1, wherein the substrate is comprised of one or more of polycarbonate, polyolefin, polyether sulfone (PES), polyethylene terephthalate (PET), polyethylene naphthalate (PEN), polyimide.

8. An OLED structure as recited in claim 1, wherein the substrate is comprised of one or more of paper, metal foils, and fabric.

9. A method of forming a barrier layer comprising:
providing a multi-component glass layer between a substrate and an active layer; and selectively removing at least one component of, or selectively adding at least one component to, the multi-component glass to change the composition of the multicomponent glass into the barrier layer.

10. A method as recited in claim 9, wherein the active layer is an organic layer.

11. A method as recited in claim 10, wherein an OLED structure is comprised of the organic layer.

12. A method as recited in claim 9, wherein the active layer includes an electronic structure.

13. A method as recited in claim 9, wherein the active layer includes a photonic structure.

14. A method as recited in claim 9, further comprising providing at least one other substrate over the active layer.

15. A method as recited in claim 9, further comprising providing at least one other multi-component glass layer between the substrate and the active layer.

16. A method as recited in claim 9, further comprising providing at least one other substrate over the active layer, and providing at least one other multi-component glass layer between the substrate and the active layer.

17. A method as recited in claim 14, wherein each of the substrates is comprised of one or more of polycarbonate, polyolefin, polyether sulfone (PES), polyethylene terephthalate (PET), polyethylene naphthalate (PEN), polyimide.

18. A method as recited in claim 9, wherein the selective adding of at least one component is by impregnating at least one component chosen to increase the flexibility of the glass, the resistance of the glass to impact breakage, or the resistance to cracking, or a combination thereof.

19. A method as recited in claim 18, wherein the impregnation is done by solution chemistry.

20. A method as recited in claim 18, wherein the impregnation is by plasma processing.

21. A barrier penetration structure, comprising:
a substantially flexible substrate and at least one barrier layer disposed between the substrate and a structure, wherein the barrier layer includes a strain relief material, which has at least one axis of orientation.

22. A barrier penetration structure as recited in claim 21, wherein the structure is one or more of an OLED structure, an electronic structure or a photonic structure.

23. A barrier penetration structure as recited in claim 21, wherein the strain relief material includes randomly oriented inclusions.

24. A barrier penetration structure as recited in claim 23, wherein the inclusions are polymer fibers.

25. A barrier penetration structure as recited in claim 23, wherein the inclusions are glass fibers.

26. A barrier penetration structure as recited in claim 23, wherein the inclusions are clay particles.

27. A barrier penetration structure as recited in claim 23, wherein the strain relief material includes a glass layer.

28. A barrier penetration structure as recited in claim 21, wherein at least one barrier layer includes a plurality of defined discrete regions.

29. A barrier penetration structure as recited in claim 28, wherein the discrete regions include a plurality of substantially parallel grooves.

30. A barrier penetration layer as recited in claim 25, wherein another barrier layer, having a plurality of substantially parallel grooves, is disposed over the at least one barrier layer and the grooves of the at least one barrier layer and the another barrier layer are not parallel.

31. A barrier penetration layer as recited in claim 21, wherein the strain relief layer comprises at least one layer having a plurality of orthogonal grooves therein.

32. A barrier penetration layer as recited in claim 31, wherein the at least one layer is glass.

33. A barrier penetration layer as recited in claim 21, wherein the strain relief layer includes a plurality of layers with grooves that are parallel.